CLAIMS

Sub B1

1. An apparatus for casting a structure comprising:

a vertically parted sand mold assembly having a first side pattern defining a first impression and a second side pattern defining a second impression, at least one of said side patterns defining a pouring basin communicating with a sprue, and at least one of said side patterns having a core, the core defining an imprint surface and a gate to a cavity formed by the first and second impressions.

2. The apparatus of claim 1 wherein the gate is a hole defined through the core.

3. The apparatus of claim 1 wherein the gate is a notch gate.

4. The apparatus of claim 1 wherein the core defines a back splash.

5. The apparatus of claim 1 wherein the core defines a J-shaped fluid trap.

6. The apparatus of claim 1 wherein the first side pattern contains no feature of the cast part.

7. The apparatus of claim 1 wherein a core is a resin bonded shell.

8. The apparatus of claim 1 wherein the gate contains a fusible plug.

9. The apparatus of claim 8 wherein the fusible plug is a steel disk.

10. The apparatus of claim 8 wherein the fusible plug is cup shaped.

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11. The apparatus of claim 10 wherein the cup has retention ears for coupling to the core.

12. The apparatus of claim 1 wherein the gate contains a filter element.

13. The apparatus of claim 12 wherein the filter element is a ceramic filter inserted within the gate.

14. The apparatus of claim 12 wherein the filter element is a ceramic.

15. The apparatus of claim 12 wherein the filter further comprises a fusible plug.

16. The apparatus of claim 15 wherein the fusible plug is a steel disk.

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17. The apparatus of claim 15 wherein the fusible disk is coupled to the core.

18. The apparatus of claim 15 wherein the fusible plug is cup shaped.

19. The apparatus of claim 18 wherein the fusible plug has ears coupled to the core.

20. The apparatus of claim 18 wherein the fusible plug is bonded to the core with an adhesive.

21. The apparatus of claim 18 wherein the fusible plug contains an inoculant.

22. The apparatus of claim 18 wherein the fusible plug assists in the formation of compacted graphite.

23. The apparatus of claim 12 wherein the gate is a hole disposed through the core element.

24. An apparatus for casting a scroll component comprising:

a vertically parted sand mold assembly having a first side pattern defining a first impression and a second side pattern defining a second impression, at least one of said side patterns defining a pouring basin communicating with a sprue, and at least one of said side patterns having a core, the core defining an involute imprint surface and a gate to a cavity formed by the first and second impressions.

25. The apparatus of claim 24 wherein the core defines a J-shaped fluid trap.

26. The apparatus of claim 24 wherein the first side pattern contains no feature of the cast part.

27. The apparatus of claim 24 wherein a core is a resin bonded shell.

28. The apparatus of claim 24 wherein the gate contains a fusible plug.

29. The apparatus of claim 28 wherein the fusible plug is a steel disk.

30 The apparatus of claim 24 wherein the fusible plug is cup shaped.

31. The apparatus of claim 24 wherein the fusible plug contains an inoculant.

32. The apparatus of claim 24 wherein the sprue and pouring basin are formed in the second side pattern.

33. The apparatus of claim 24 wherein the sprue and the pouring basin are formed in the first side pattern.

34. A method of casting a scroll component comprising the steps of:

providing a mold having a vertical parting line and a first and second side mold, at least one of said side molds defining a pouring basin communicating with a sprue, the second side mold having a core, the core has an imprint surface and defines a gate therethrough, the gate defining a back splash;

providing a fusible plug in the gate; and

providing molten metal into the pouring basin.

35. The method of claim 34 wherein providing a fusible plug in the gate, includes providing a fusible plug in the gate which reduces the velocity of the molten metal entering the gate.

36 The method of claim 34 wherein providing a fusible plug in the gate, includes providing an inoculant.

37. The method of claim 36 wherein providing a mold includes providing a riser neck and providing a fusible plug is providing a fusible plug in said riser neck.

38. The method of claim 36 wherein providing a mold includes providing a riser neck and providing a fusible plug is providing a fusible plug in said riser neck.